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# Fingerprinting & Other Research Technologies Workshop (5/4/07)

**YouTube - Audio & Video Fingerprinting**

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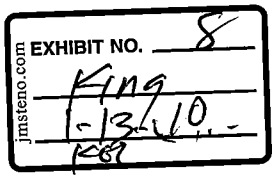

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2. Use cases
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# 1. Fingerprinting - YouTube Integration

- Reference fingerprint database
  - Populated with all partner videos as they have clear ownership
  - Or directly by partners generating reference fingerprints - music labels produce FP's and send to Audible Magic
- Policy database
  - Metadata and policy associated with content (Rev Share, Track, Block)
- Matching service
  - For every new user video uploaded to site, YT extracts audio and video fingerprint
  - Fingerprint sent to match service for identification
  - Result of identification is either:
    - MISS or
    - HIT with list of videos it matched against with confidence score



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# 1. Fingerprinting - YouTube Integration (cont'd)

- YT generates build list for Audible Magic based on license data - need to have a policy before we want a match
- Policy gets executed on uploaded video by "Claim" engine
  - If Block: video taken down
  - If Rev Share: video playbacks are tracked and monetized
  - If Track: video playbacks are tracked, not monetized
- Rev Share engine and Reporting back to partners
  - Weekly marketing report
  - Monthly financial report



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# 1. Fingerprinting

- How well does it work
  - Audio fingerprinting from 3rd party solution is very accurate (Audible Magic). No false positives, false negatives are unknown
  - Video fingerprinting being developed by Jay/Michele very promising. Still training the algorithm. Too early to give data



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# 2. Use cases

- YT launched audio fingerprinting in mid-Feb for all 200k daily uploads
- Reference fingerprint database populated with ~100k references, mostly songs from Music Labels
- Fast: fingerprint lookup and business logic executed within minutes of upload



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# 3. Next Steps

- What needs improvement
  - Policy DB (Rights management) is very complex
    - International: different companies control rights in different countries
    - Music industry: Labels, Publishers. Very difficult to build a global DB
  - Identification: interesting cases
    - Movie and TV clips with music, owner vs. distributor (MTV videos), mashups
  - Building a large reference fingerprint DB requires huge outreach to partners, and ongoing cooperation
- Goals for 2007
  - 100% YT uploads going thru Google based audio and video fingerprinting solution
  - Build policy database for US content, extend to Int'l



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# 3. Next Steps

- Team is working on VERY aggressive timelines to build world class video and audio fingerprinting system for YouTube - we need to maintain focus to meet these deadlines - please help
- By end of Q3 timeframe, we should have more time to open the platform to other needs
- The success and timely launch of this program is a top priority for YouTube. This is the linchpin for building relationships with media companies, and monetizing video watch pages
- Media companies and press are all very interested in this work so confidentiality very important



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